RADCALC for WINDOWS[1]

Applications in the Transportation of Radioactive Materials

Radcalc for Windows[1] Version 2.01 (**Radcalc**) is a user-friendly software program maintained by Waste Management Federal Services, Inc., Northwest Operations (WMNW) for the National Transportation Program, Department of Energy (DOE). It is used for transportation and packaging applications in the shipment of radioactive waste materials. Among its applications are: the classification of waste per the U.S. Department of Transportation (DOT) regulations; the calculation of decay heat and daughter products; and the calculation of the radiolytic production of hydrogen gas.

Radcalc classifies shipments per 49 CFR 173 (revised October 1, 1996) definitions and A_1 / A_2 values. It classifies shipments as:

- Radioactive
- Reportable quantity
- Type A or Type B
- Highway route controlled quantity
- Limited quantity
- Low-specific-activity-I(LSA-I), LSA-II, or LSA-III
- Fissile excepted
- TRU

The code output also provides a list of isotopes that are required for shipping papers and labels (95% of the total A_1 / A_2 values).

- **Radcalc** has a library of over 280 radionuclides and includes many user-friendly features for input of the source term

- The user can input activity in units of becquerels or curies or convert between units
- The source term can be multiplied by a factor to increase or decrease activity
- The source term can be imported from another file or exported to a file
- **Radcalc** will write a data file that includes information on activity, specific activity, decay heat, A_1 / A_2 values, and totals
- The software will calculate the activity of daughter products for a specified period of time or to a specified date
- Decay heat is also calculated
- The hydrogen gas generation calculations are described in detail in the **Radcalc** manuals
- The code has been extensively verified, validated, and reviewed

Radcalc is available free of cost to the DOE community from WMNW. Call Janet McFadden (509-376-0610) or Tino Romano (509-373-0371) to request a copy. You can contact us by e-mail at janet_mcfadden@wmnsnw.com or at tino_romano@wmnsnw.com. WMNW offers two training modules on **Radcalc**, Module 1: DOT Classification with Radcalc and Module 2: Hydrogen Gas Generation Calculations with **Radcalc**. Contact us for further information.

[1]Windows is a registered trademark of the Microsoft Corporation

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